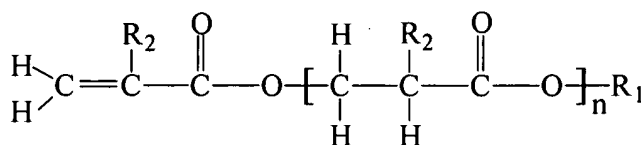


Amendments to the Claims:

1. (Currently Amended) A process for cleaving [[of a]] (meth)acrylic acid oligomers comprising the steps of:

providing at least one (meth)acrylic acid oligomer comprising a [[of]] structure I



I

wherein

R₁ is a hydrogen atom or a C₁ to C₁₀ alkyl groups

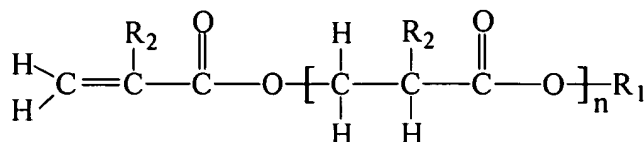
R₂ is a hydrogen atom or a methyl group, and

n is a whole number within the range between 1 and 200[[,]; and

[[wherein the]] heating the at least one (meth)acrylic acid oligomer [[are heated]] to a temperature of at least 50°C at a pressure of at least 10 bar.

2. (Currently Amended) [[Process]] A process for cleaving [[of a]] (meth)acrylic acid oligomers comprising the steps of:

providing at least one (meth)acrylic acid oligomer comprising a [[of]] structure I



I

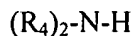
wherein

R₁ is a hydrogen atom or a C₁ to C₁₀ alkyl groupsR₂ is a hydrogen atom or a methyl group, and

n is a whole number within the range between 1 and 200[.];

[[with]] providing a cleaving agent comprising a [[of]] structure II

or [[of]] structure III



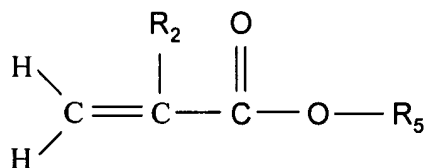
wherein

R₃ is a hydrogen atom, a C₁ to C₁₂ alkyl group, or a -C_xH_{2x}-OH group, wherein x is a whole number within a range from 1 to 12, andR₄ is a hydrogen atom or a C₁ to C₁₂ alkyl group, with the proviso that not both R₄ groups are hydrogen atoms[.]; and[[wherein the]] contacting the at least one (meth)acrylic acid oligomer [[is brought into contact]] with the cleaving agent at a temperature of at least 50 °C and at a pressure of at least 10 bar.

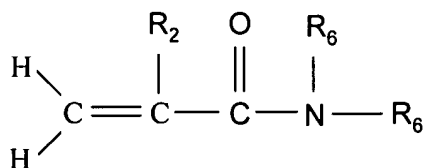
3. (Currently Amended) [[Process]] The process according to Claim 2, wherein the cleaving agent and the at least one (meth)acrylic acid oligomer are used in a [[weight ratio]] cleaving agent : (meth)acrylic acid oligomer weight ratio within a range from 0.01 : 1 to 10 : 1.

4. (Currently Amended) [[Process]] The process according to [[one of Claims]] Claim 2 [[or 3]], wherein the cleaving agent [[is]] comprises any one of water, ethanol, n-butanol, or a mixture of at least two of these compounds.

5. (Currently Amended) [[Process]] The process according to Claim 1 [[any one of the preceding Claims]], wherein [[by means of the]] a cleaving product comprises a compound comprising a [[of]] structure IV



or [[of]] structure V



[[is separated,]]

wherein

R_6 is an H atom or a $\text{C}_1 - \text{C}_{12}$ alkyl group, with the proviso that not both R_6 groups are hydrogen atoms,

R₅ is an H atom, a C₁-C₁₂ alkyl group or a -C_xH_{2x}-OH- group, whereby x is a whole number within a range from 1 to 12, and

R₂ is an H atom or a methyl group.

6. (Currently Amended) [[Process]] The process according to Claim 1 [[any one of the preceding Claims]], wherein the least one (meth)acrylic acid oligomer [[are]] comprises [[used in the form of]] a composition [[, which is obtained as]] comprising a bottom product of the distillative work-up of [[the]] a (meth)acrylic acid solution in process step iii) during [[the]] a process for (meth)acrylic acid synthesis comprising the [[process]] steps of:

- i) [[catalytic oxidation of]] catalytically oxidizing C₃ or C₄ starting compounds in [[the]] a gas phase[[,]];
- ii) any one of absorbing, condensing, or absorbing and condensing [[absorption or condensation or both of the]] a formed (meth)acrylic acid in water[[,]]; and
- iii) [[work-up of]] working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation.

7. (Currently Amended) [[Process]] The process according to Claim 1 [[any one of the preceding Claims]], wherein the least one (meth)acrylic acid oligomer [[are]] comprises [[used in the form of]] a composition [[, which is obtained as]] comprising a mother liquor obtained during the purification by crystallization in process step IV) during [[the]] a process for (meth)acrylic acid synthesis comprising [[process]] steps of:

- I) [[catalytic oxidation of]] catalytically oxidizing C₃ or C₄ starting compounds in [[the]] a gas phase[[,]];.
- II) any one of absorbing, condensing, or absorbing and condensing [[absorption or condensation or both of the]] formed (meth)acrylic acid in water to form an absorption product[[,]];.
- III) optionally, [[work-up of]] working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation[[,]]; and

IV) purifying [[purification]] by crystallization [[of]] the absorption product or [[of the]] purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation or purifying by crystallization the absorption product and purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation [[of both]].

8. (Currently Amended) [[Process]] The process according to Claim 2 [[any one of Claims 2 to 7]], wherein the contacting of the at least one (meth)acrylic acid oligomer [[is brought into contact]] with the cleaving agent occurs at a temperature of at least 250°C.

9. (Currently Amended) [[Process]] The process according to Claim 1 [[any one of the preceding Claims]], further comprising providing [[wherein the cleaving occurs in the presence of]] a catalyst.

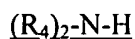
10. (Currently Amended) [[Use]] Using a compound comprising a [[of compounds of]] structure II



wherein

R₃ is a hydrogen atom, a C₁ to C₁₂ alkyl group, or a -C_xH_{2x}-OH group, wherein x is a whole number within a range from 1 to 12, or

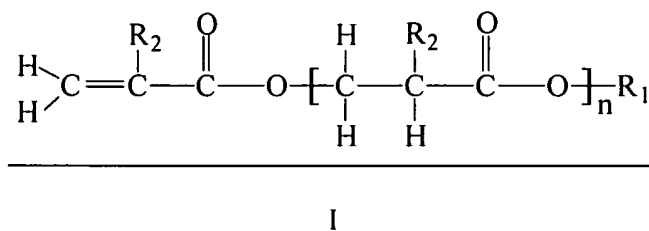
structure III



wherein

R₄ is a hydrogen atom or a C₁ to C₁₂ alkyl group, with the proviso that not both R₄ groups are hydrogen atoms,

[[or of structure III, as defined in Claim 2,]] as a cleaving agent for cleaving [[of]] at least one (meth)acrylic acid oligomer [[of]] comprising a structure I



wherein

R₁ is a hydrogen atom or a C₁ to C₁₀ alkyl groups

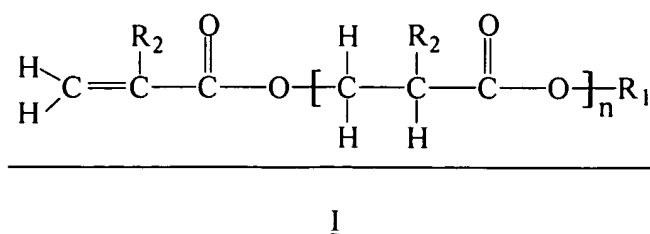
R₂ is a hydrogen atom or a methyl group, and

n is a whole number within the range between 1 and 200,

at a temperature of at least 50 °C and at a pressure of at least 10 bar.

11. (Currently Amended) [[Device]] A device for production of (meth)acrylic acid comprising as components connected with each other in fluid-communicating fashion a (meth)acrylic acid synthesis unit, a quench absorber, a distillation device and/or a crystallization device, [[as well as]] and a (meth)acrylic acid oligomer cleaving device, wherein the (meth)acrylic acid oligomer cleaving device comprises a cleaving agent reservoir [[(6)], at least one first and one second conveyor unit, a mixing device [[(5)], a heating device [[(10)], a cleaving reactor and at least a first to fifth conduit, wherein

(β1) a reactant pump [[(4)] as the first conveyor unit comprises a feed line, which communicates a composition comprising [[a]] at least one (meth)acrylic acid oligomer comprising a structure I: [[as defined in Claim 1 or 2]]



wherein

R₁ is a hydrogen atom or a C₁ to C₁₀ alkyl groups

R₂ is a hydrogen atom or a methyl group, and

n is a whole number within the range between 1 and 200;

- (β2) the cleaving agent reservoir [(6) is] communicating by a cleaving agent line [(7)] as first conduit to a cleaving agent pressure pump [(9)] as second conveyor unit;
- (β3) the first and the second conveyor unit [(4, 9) are] communicating [(to)] with the mixing device [(5)] by a second and third conduit;
- (β4) the mixing device [(5) is] communicating [(to)] with the heating device [(10)] by a fourth conduit; and
- (β5) the heating device [(10) is] communicating [(to)] with the cleaving reactor by a fifth conduit,

wherein the oligomer cleaving device comprises a release valve [(12)], by means of which the cleaving product of the (meth)acrylic acid oligomer cleaving situated in the heating device [(10)] can be expanded.

12. (Currently Amended) [[Device]] The device according to Claim 11, wherein the composition which is communicated in the feed line to the first conveyor unit corresponds to [[the composition defined in claim 6]] at least one (meth)acrylic acid oligomer comprising a composition comprising a bottom product of the distillative work-up of a (meth)acrylic acid

solution in process step iii) during a process for (meth)acrylic acid synthesis comprising the steps of:

- i) catalytically oxidizing C₃ or C₄ starting compounds in a gas phase;
- ii) any one of absorbing, condensing, or absorbing and condensing a formed (meth)acrylic acid in water; and
- iii) working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation.

13. (Currently Amended) [[Device]] The device according to Claim 11, wherein the composition which is communicated in the feed line to the first conveyor unit corresponds to [[the composition defined in claim 6 or 7]] at least one (meth)acrylic acid oligomer comprising a composition comprising a mother liquor obtained during the purification by crystallization in process step IV) during a process for (meth)acrylic acid synthesis comprising steps of:

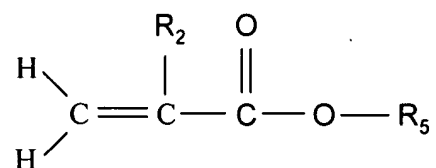
- I) catalytically oxidizing C₃ or C₄ starting compounds in a gas phase;
- II) any one of absorbing, condensing, or absorbing and condensing formed (meth)acrylic acid in water to form an absorption product;
- III) optionally, working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation; and
- IV) purifying by crystallization the absorption product or purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation or purifying by crystallization the absorption product and purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation.

14. (Currently Amended) [[Use of]] Using a device according to [[any one of Claims]] Claim 11 [[to 13]] for a production of (meth)acrylic acid.

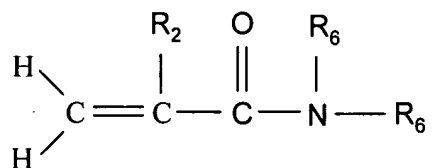
15. (New) Using a device according to Claim 12 for a production of (meth)acrylic acid.

16. (New) Using a device according to Claim 13 for a production of (meth)acrylic acid.

17. (New) The process according to Claim 2, wherein a cleaving product comprises a compound comprising a structure IV



or structure V



wherein

R_6 is an H atom or a $\text{C}_1\text{-C}_{12}$ alkyl group, with the proviso that not both R_6 groups are hydrogen atoms,

R_5 is an H atom, a $\text{C}_1\text{-C}_{12}$ alkyl group or a $-\text{C}_x\text{H}_{2x}\text{-OH-}$ group, whereby x is a whole number within a range from 1 to 12, and

R_2 is an H atom or a methyl group.

18. (New) The process according to Claim 2, wherein the at least one (meth)acrylic acid oligomer comprises a composition comprising a bottom product of the distillative work-up of a (meth)acrylic acid solution in process step iii) during a process for (meth)acrylic acid synthesis comprising the steps of:

- i) catalytically oxidizing C₃ or C₄ starting compounds in a gas phase;
- ii) any one of absorbing, condensing, or absorbing and condensing a formed (meth)acrylic acid in water; and
- iii) working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation.

19. (New) The process according to Claim 2, wherein the at least one (meth)acrylic acid oligomer comprises a composition comprising a mother liquor obtained during the purification by crystallization in process step IV) during a process for (meth)acrylic acid synthesis comprising steps of:

- I) catalytically oxidizing C₃ or C₄ starting compounds in a gas phase;
- II) any one of absorbing, condensing, or absorbing and condensing formed (meth)acrylic acid in water to form an absorption product;
- III) optionally, working-up the thus-obtained aqueous (meth)acrylic acid solution by distillation; and
- IV) purifying by crystallization the absorption product or purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation or purifying by crystallization the absorption product and purifying by crystallization a concentrated (meth)acrylic acid solution obtained by distillation.

20. (New) The process according to Claim 2, further comprising providing a catalyst.